

AMENDMENTS TO THE CLAIMS

Please add or amend the claims to read as follows, and cancel without prejudice or disclaimer to resubmission in a divisional or continuation application claims indicated as cancelled:

1. (Currently Amended) A method comprising:

adaptively and separately ~~selecting a coding mode of each~~ coding an orthogonal frequency division multiplexing sub-carrier ~~symbols of a data stream in an orthogonal frequency division multiplexing channel~~ first and second sub-carriers symbols data streams either in a diversity mode or in a multiplexing mode according to a received channel state information that relates to the orthogonal frequency division multiplexing sub-carrier; and

adaptively grouping receivers according to a ~~desired~~ selected coding mode received with the received channel state information, wherein said selected coding mode is selectable so that said sub-carrier is able to support the sensitivity required for transmitting in the selected mode.

2. (Original) The method of claim 1, comprising coding the data stream generated by a multiple-in multiple-out receivers-transmitters system in a multiplexing mode.
3. (Original) The method of claim 1, comprising coding the data stream generated a multiple-in multiple-out receivers-transmitters system in a diversity mode.
4. (Cancelled)
5. (Currently Amended) The method of claim 1, comprising:

~~coding transmitting~~ symbols of ~~[[a]] the first and second subset of sub-carriers symbols data streams of an orthogonal frequency division multiplexing channel~~ coded in ~~[[a]] the multiplexing mode by a first transmitter; and~~

~~coding transmitting~~ symbols of ~~[[a]] the first and second subset of sub-carriers of an orthogonal frequency division multiplexing channel~~ coded in ~~[[a]] the diversity mode by a second transmitter.~~

6. (Currently Amended) A method comprising:

coding symbols of a first subset of sub-carriers of an orthogonal frequency division multiplexing channel in a diversity mode ~~first mode~~; and

coding symbols of a second subset of said sub-carriers of ~~[[an]]~~ said orthogonal frequency division multiplexing channel in a multiplexing mode ~~second mode~~;

wherein said coding is selectable according to a received channel state information that relates to the orthogonal frequency division multiplexing sub-carrier so that ~~each~~ of said first and second subsets ~~subset~~ of sub-carriers is able to support the sensitivity required for transmitting in the respective mode.

7. (Currently Amended) The method of claim 6 comprising:

transmitting ~~[[a]]~~ said first ~~group of symbols~~ subset of sub-carriers of ~~[[an]]~~ said orthogonal frequency division multiplexing channel via a first antenna; and

transmitting ~~[[a]]~~ said second ~~group of symbols~~ subset of sub-carriers of ~~[[an]]~~ said orthogonal frequency division multiplexing channel via a second antenna.

8. Cancelled.

9. (Currently Amended) An apparatus comprising:

first and second mappers to receive first and second encoded data streams and to output first and second orthogonal frequency division multiplexing sub-carriers symbols streams, respectively;

a coding mode selector to select a coding mode of a symbol of ~~[[an]]~~ said first and second orthogonal frequency division multiplexing ~~sub-carrier~~ sub-carriers symbols streams according to a received channel state information that related to the orthogonal frequency division multiplexing sub-carrier wherein the coding mode is selectable from either a diversity mode or a multiplexing mode; and

a plurality of receivers;

~~wherein said coding mode is selectable so that said sub-carrier is able to support the sensitivity required for transmitting in the selected mode, and~~

~~wherein said apparatus is configured to be adaptively grouped group said plurality of receivers according to a desired coding mode received with said received channel state information.~~

10. (Currently Amended) The apparatus of claim 9, further comprising:

a channel state analyzer to select the coding mode based on a quality indicator of the orthogonal frequency division multiplexing sub-carrier of the first and second orthogonal frequency division multiplexing sub-carriers symbols streams.

11. (Original) The apparatus of claim 9, comprising a multiple-in-multiple-out receivers transmitters system.

12. Cancelled.

13. (Currently Amended) The apparatus of claim 9 comprising:

a first transmitter to transmit ~~the~~ sub carriers symbols of the first and second orthogonal frequency division multiplexing sub-carriers symbols streams coded according to the diversity mode; and

a second transmitter to transmit ~~a coded symbol that is~~ sub carriers symbols of the first and second orthogonal frequency division multiplexing sub-carriers symbols streams coded according to multiplexing mode ~~one or more coding mode~~.

14. Cancelled.

15. (Currently Amended) The apparatus of claim 13, wherein the second transmitter is able to transmit ~~two or more coded symbols wherein~~ at least some of the coded symbols of the first and second orthogonal frequency division multiplexing sub-carriers symbols streams that are coded according the diversity mode and at least some other coded symbols of the first and second orthogonal frequency division multiplexing sub-carriers symbols streams that are coded according to multiplexing mode.

16. Cancelled.

17. Cancelled.

18. Cancelled.

19. (Currently Amended) A wireless communication device comprising:

a multiple-in-multiple-out receivers transmitters system operably coupled to two or more dipole antennas wherein, the multiple-in-multiple-out receivers transmitters system includes a transmitter system which includes;

first and second mappers to receive first and second encoded data streams and to output first and second orthogonal frequency division multiplexing sub-carriers symbols streams, respectively;

a coding mode selector to select a coding mode of a symbol of ~~[[an]]~~ said first and second orthogonal frequency division multiplexing sub-carrier sub-carriers symbols streams according to a received channel state information that related to the orthogonal frequency division multiplexing sub-carrier wherein the coding mode is selectable from either a diversity mode or a multiplexing mode; and

~~wherein said coding mode is selectable so that said sub-carrier is able to support the sensitivity required for transmitting in the selected mode, and~~

a receiver system ~~wherein said system is configured to be~~ adaptively group said receivers grouped according to a ~~desired~~ coding mode received with said received channel state information.

20. (Currently Amended) The wireless communication device of claim 19, wherein the transmitter system comprises:

a channel state analyzer to select the coding mode based on a quality indicator of the orthogonal frequency division multiplexing sub-carrier of the first and second orthogonal frequency division multiplexing sub-carriers symbols streams.

21. Cancelled.

22. (Currently Amended) The wireless communication device of claim 19, wherein the transmitter system comprises:

a first transmitter to transmit ~~the~~ sub carriers symbols of the first and second orthogonal frequency division multiplexing sub-carriers symbols streams coded according to the diversity mode; and

a second transmitter to transmit ~~a coded symbol that is~~ sub carriers symbols of the first and second orthogonal frequency division multiplexing sub-carriers symbols streams coded according to multiplexing mode ~~one or more coding mode.~~

23. Cancelled.

24. (Currently Amended) The transmitter system of claim 22, wherein the second transmitter is able to transmit ~~two or more coded symbols wherein~~ at least some of the coded

symbols of the first and second orthogonal frequency division multiplexing sub-carriers
symbols streams that are coded according the diversity mode and at least some other
coded symbols of the first and second orthogonal frequency division multiplexing sub-
carriers symbols streams that are coded according to multiplexing mode.

25. Cancelled.

26. Cancelled.

27. Cancelled.

28. (Currently Amended) An article comprising:

a storage medium, having embodied thereon instructions, when executed, result in:

adaptively and separately coding ~~selecting a coding mode of~~ an orthogonal
frequency division multiplexing sub-carrier ~~symbol of a data stream~~ first and second
sub-carriers symbols data streams either in a diversity mode or in a multiplexing mode
according to a received channel state information that relates to the orthogonal
frequency division multiplexing sub-carrier; and

adaptively grouping a plurality of receivers according to a ~~desired~~ selected coding
mode received with said received channel state information, wherein said selected
coding mode is selected so that said sub-carrier is able to support the sensitivity
required for transmitting in the selected mode.

29. (Original) The article of claim 28, wherein the instructions, when executed, result in:

coding the data stream generated by a multiple-in multiple-out receivers-
transmitters system in a multiplexing mode.

30. (Original) The article of claim 28, wherein the instructions, when executed, result in:

coding the data stream generated a multiple-in multiple-out receivers-transmitters
system in a diversity mode.

31. (Cancelled)

32. (Currently Amended) The article of claim 28, wherein the instructions, when executed,
result in:

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~~encoding transmitting symbols of [[a]] the first and second subset of sub-carriers symbols data streams of an orthogonal frequency division multiplexing channel coded in [[a]] the multiplexing mode by a first transmitter; and~~

~~encoding transmitting symbols of [[a]] the first and second subset of sub-carriers of an orthogonal frequency division multiplexing channel coded in [[a]] the diversity mode by a second transmitter.~~